

SUMMARY

Third-year Computer Science & Engineering undergraduate at the University of Moratuwa. Works across distributed streaming systems, forecasting and machine-learning pipelines, relational database design and full-stack web development, on academic, competition and client-facing projects.

EDUCATION

University of Moratuwa 2024 – 2028 (expected)
B.Sc. Engineering (Hons) in Computer Science & Engineering CGPA 3.84/4.00 · Dean's List: Semesters 1, 3, 4
Relevant coursework: Object Oriented Programming · Data Structures & Algorithms · Database Systems · Software Engineering · Computer Architecture & Digital Design · Programming Languages & Compilers · Machine Learning

Ananda College, Colombo · G.C.E. Advanced Level in Physical Science 2020 – 2023
St. Thomas' College, Kotte · Primary and Secondary Education 2009 – 2019

PROJECTS

Code Sage AI | *Next.js, TypeScript, FastAPI, Celery, Redis, PostgreSQL, scikit-learn* 2026 – Present

- Technical-debt analytics platform that scans a repository, scores every file and ranks what to refactor first. Static analysis metrics and git history feed a rule engine alongside two machine-learning models, so the ranking reflects both the state of the code and how it has been changing.
- Asynchronous analysis pipeline: FastAPI accepts a repository, Celery workers backed by Redis process it off the request path, and results persist to PostgreSQL, so a large codebase never blocks the API.
- Data-visualisation layer built around a colour-coded file-tree heat map, which locates where debt concentrates so a reviewer sees the worst directories before opening a single file.
- Trend charts tracking how the debt score shifts commit over commit, turning a one-off audit into a direction of travel a team can act on.
- Prioritised findings list naming the files that need immediate attention, so the output is an action list rather than a number.

OnTime | *Python, Kafka, Apache Flink, MQTT, Redis, InfluxDB, Docker* OnTime-SE-G/ontime-g2

- Real-time arrival-prediction platform for public transport fleets, built as a distributed streaming system by a team of twenty over the Semester 4 software engineering project.
- Built the MQTT to Kafka ingestion engine carrying live GPS telemetry from the bus fleet into the stream-processing layer, with Apache Flink consuming the topics downstream.
- Built the SARIMA rolling-window arrival-time model and an automated retraining loop, so predictions stay accurate as route behaviour drifts across the day rather than decaying between releases.
- Time-series telemetry persisted to InfluxDB with hot lookups cached in Redis; the full stack runs under Docker for reproducible deployment across the team.

StockSight | *Python, scikit-learn, XGBoost, Pandas* JPabasara/pharma-availability-control-tower

- Forecasts pharmaceutical stock availability across Hemas's distribution network, so shortages surface while there is still time to act rather than when a product reaches an empty shelf.
- Cascading pipeline: a demand-prediction model feeds warehouse flow logic, which feeds a priority score ranking which items need intervention first.
- Gradient-boosted models over historical distribution data, with feature engineering on seasonality and regional demand patterns.
- Presented as a control tower over the network: a single ranked list of at-risk items, rather than raw model output a planner would have to interpret.
- Secured a place in the elite list (top 10) at AITHON, the AI and innovation competition organized by Hemas.

BrightBuy Retail System | *MySQL, Node.js, React* JPabasara/brightbuy-project

- E-commerce platform for a consumer electronics chain, designed from the database outward around a normalised relational schema.
- Stored procedures, triggers and transactional order handling enforcing stock consistency, so concurrent orders cannot oversell an item.

- Inventory tracking and a reporting layer producing sales and stock-movement summaries directly in SQL, alongside a React storefront served by a Node.js API.

Nano Processor | VHDL, Vivado, BASYS 3 FPGA

 JPabasara/entel-nano-processor

- 4-bit processor designed from the instruction set upward in VHDL, simulated in Vivado, then synthesised onto a BASYS 3 FPGA board.
- Instruction decoder, register bank, multiplexer network and a seven-segment display driver, integrated and timed as a single synchronous design.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C++, C, Java, SQL, VHDL

Frameworks & Libraries: React, Next.js, Node.js, FastAPI, Celery, scikit-learn, XGBoost, Pandas

Databases: PostgreSQL, MySQL, Redis, InfluxDB

Tools & DevOps: Docker, Kafka, Apache Flink, MQTT, Git, GitHub Actions, Vivado

Concepts & Practices: Distributed streaming, time-series forecasting, relational schema design, REST API design, asynchronous task processing, containerised development, CI/CD

TRAINING

LSEG C++ Workshop 2026 | C++17, CMake, FastAPI, React

 HimathX/LSEG-cpp-bootcamp

- Twelve-week programme on high-performance C++, delivered by engineers from the London Stock Exchange Group: performance fundamentals, the C++ abstract machine, SOLID and design patterns, and multithreading.
- Final project, **Flower Exchange Engine**: a C++17 order matching engine built on an in-memory order book with price-time priority matching, CSV batch ingestion of orders, generated execution reports, and a validation layer that rejects malformed orders before they reach the matching path.
- Wrapped in a FastAPI service that runs the compiled binary and a React front end for drag-and-drop order upload, an execution blotter and trade volume charts, so the engine is usable without a terminal.

HONOURS & AWARDS

1st Runner-Up, Cypher 3.0 Hackathon, IEEE WIE Affinity Group of KDU · Inter-university hackathon Oct 2025

VOLUNTEERING & LEADERSHIP

Event Committee , IEEE Computer Society, University of Moratuwa	2026
Events Committee , Venture Night, Society for Innovation, Engineering & Entrepreneurship (SIEE)	2026
Organizing Committee , Careers Fair CSE, University of Moratuwa	2026
Technical Committee , Enigma 2.0 Hackathon - Organized by Mathematics Society, University of Moratuwa	2025

REFERENCES

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